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PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re application of

Docket No: Q65548

Yasumichi KUWAYAMA, et al.

Appln. No.: 09/910,872

Group Art Unit: 2833

Confirmation No.: 4044

Examiner: Ross N. Gushi

Filed: April 24, 2001

For: ELECTRIC CONNECTING TERMINAL

SUBMISSION OF APPEAL BRIEF

MAIL STOP APPEAL BRIEF - PATENTS

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

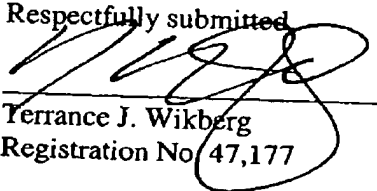
Sir:

FILED

OCT 4 2004

Submitted herewith please find an Appeal Brief. A check for the statutory fee of \$340.00 is attached. The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account. A duplicate copy of this paper is attached.

Respectfully submitted


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WASHINGTON OFFICE

23373

CUSTOMER NUMBER

Date: October 4, 2004

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APPEAL BRIEF UNDER 37 C.F.R. § 41.37

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Sir:

In accordance with the provisions of 37 C.F.R. § 41.37, Appellant submits the following:

REAL PARTY IN INTEREST

The real party in interest is YAZAKI CORPORATION of Tokyo, Japan, the assignee of the present application. The assignment was recorded on July 24, 2001 at Reel 012020, Frame 0217.

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RELATED APPEALS AND INTERFERENCES

Appellant, Appellant's legal representatives, and the assignee in this application are not aware of any other pending appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in the instant appeal.

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STATUS OF CLAIMS

Claims 1, 2, 6, 7, 9 and 10 are all currently pending, and claims 3, 4, 5 and 8 have been canceled.

This is an appeal from the Examiner's Final Office Action, dated March 4, 2004 rejecting claims 1, 2, 4, 6, 7, 9 and 10. Claims 1, 2, 6, 7, 9 and 10 on appeal are set forth in their entirety in Appendix A, attached to this Brief on Appeal.

Applicant has filed concurrently herewith a Supplemental Amendment under 37 C.F.R. 1.116, canceling claim 4.

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STATUS OF AMENDMENTS

There are no outstanding, non-entered amendments of the claims.

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SUMMARY OF THE CLAIMED SUBJECT MATTER

The present invention is generally related to an improvement in an electric connecting terminal. In the field of electric connecting terminals it is often necessary to have connecting terminals connect to flat circuit bodies, such as item 1, shown in Figure 18 of the present application. A typical flat circuit body (i.e. item 1) is made up of a coating (item 5) and a conductor portion (item 4). To sufficiently connect an electric connecting terminal (item 2) to a flat circuit body (item 1), the terminal 2 is provided with a plane portion 6 and piercing portions (items 7 and 8) which are designed to penetrate both the coating 5 and the conductor 4 of the flat circuit body 1. *See* Figure 18, and Specification, page 2, lines 1-20. To aid in allowing the piercing portions 7 and 8 to penetrate the flat circuit body 1, the piercing portions 7 and 8 are provided with tapered portions 7a and 8a which have a width gradually reduced from a base portion (as seen in Figure 14) and tapered surfaces 7b and 8b which gradually reduce a plate thickness of the piercing portions 7 and 8 towards the tips thereof. *See* Figures 14 and 18, and page 2, lines 13-20.

As shown in Figures 17 and 18, the tapered surfaces 7b and 8b are on the outer surfaces of the piercing portions 7 and 8 (i.e. facing away from the plate portion 6). With this configuration, when the piercing portions 7 and 8 are pressed against the flat circuit body 1 a inward drag T_1 is created. This is depicted in Figure 18, where the inward drag T_1 causes the portions 7 and 8 to be bent inward prior to fully penetrating the body 1. *See also* page 4, lines 9-17. Because of this condition, contact pressure between the terminal 2 and the conductor 4 is

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reduced, which results in reduced conduction reliability and reduced mechanical strength of the connection. Additionally, because of the tapered portions 7a and 8a (which gradually reduce the cross-sectional area of the piercing portions 7 and 8 farther away from the plate portion 6) the area of contact between the conductor 4 and the terminal 2 (through the portions 7 and 8) is reduced. *See* Figure 19 and page 5, lines 11-21.

The present invention is directed to addressing each of the above problems, and a concise description of the claimed subject matter of the present invention is set forth below, with regard to each of the respective independent claims. Each of the following discussions will include reference to various portions of the present application to aid in the understanding of the discussion. However, such reference, unless otherwise indicated, is intended to point out the described exemplary embodiments, and it is not intended to limit the scope of the claims to only the express embodiments cited below.

Claim 1:

The claimed subject matter, as set forth in claim 1, is an electric connecting terminal 21 connected to a flat circuit body 1. *See* Figures 1-8. To aid in the following discussion, Figures 1 and 3 have been reproduced below.

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FIG. 1

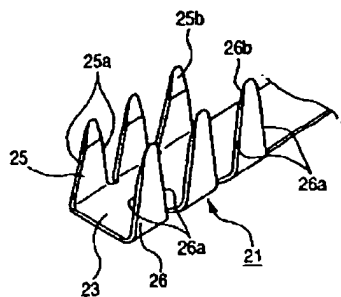
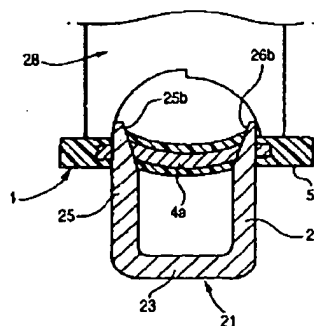


FIG. 3



As shown in the exemplary embodiment depicted in at least Figures 1 and 3, the electric connecting terminal 21 comprises a plane portion 23 and a pair of piercing portions 25 and 26. Each of the piercing portions 25 and 26 are erected from opposite side edges of the plane portion 23. *See also* Specification, page 15, lines 1-7. As depicted in Figures 3 and 4, the piercing portions 25 and 26 penetrate through a coating 5 and a conductor 4a of the flat circuit body 1. *See also id.* at lines 13-19. Moreover, once penetrated through the flat circuit body 1 the tips of the piercing portions 25 and 26 are folded towards each other.

Further, each of the piercing portions 25 and 26 contain root portions, respectively, which are adjacent to the plane portion 23, and distal portions. Each of the distal portions contain a tapered surface 25b and 26b, respectively, located on an internal surface of the piercing portions, where the tapered surfaces 25b and 26b are inclined with respect to an internal surface of the root portions, so that the distal portions are tapered. This can be seen in Figures 1-4, where each of the piercing portions 25 and 26 have distal portions having tapered internal surfaces 25b and 26b, and the tapered surfaces are inclined with respect to an internal surface of respective root portions of the piercing portions 25 and 26. *See also id.* at page 15, line 20 to page 16, line 13.

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The claimed invention, as described above, addresses the problems discussed above with regard to the prior art and provides the advantages set forth and discussed on page 16, line 14 to page 20, line 11 of the present application.

Claim 4:

The claimed subject matter, as set forth in claim 4, is an electric connecting terminal 41 connected to a flat circuit body 1. *See* Figures 9-10 and 11B. To aid in the following discussion, Figures 9 and 10 have been reproduced below.

FIG. 9

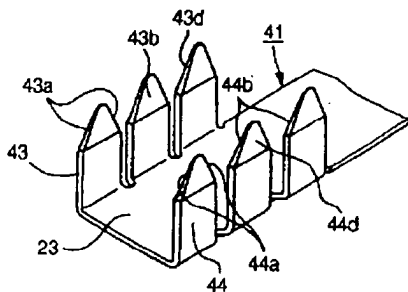
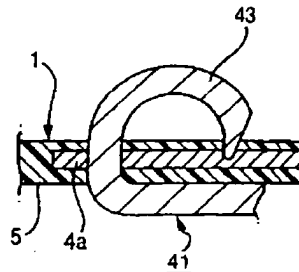


FIG. 10



As shown in the exemplary embodiment depicted in at least Figures 9 and 10, the electric connecting terminal 41 comprises a plane portion 23 and a pair of piercing portions 43 and 44. Each of the piercing portions 43 and 44 are erected from opposite side edges of the plane portion 23, which extend in a longitudinal direction of the terminal 41. *See also* Specification, page 20, lines 14-21. As depicted in Figure 10, the piercing portions 43 and 44 penetrate through a coating 5 and a conductor 4a of the flat circuit body 1. *See also id.* Moreover, once penetrated through the flat circuit body 1 the tips of the piercing portions 43 and 44 are folded towards each other.

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Further, each of the piercing portions 43 and 44 contain a portion which has approximately a constant width in the longitudinal direction of the terminal, is adjacent to the plate portion 23, and penetrates through the conductor 4a. *See* Figures 9, 10 and 11B, and Specification, page 20, line 22 to page 22, line 13. Each of Figures 9 and 11B depict an embodiment where a portion of the piercing portions 43 and 44 is positioned adjacent to the plane portion 23, penetrates the conductor 4a, and has an approximately constant width in the longitudinal direction.

The claimed invention, as described above, addresses problems discussed above with regard to the prior art and provides the advantages set forth and discussed on page 22, line 1 to page 23, line 5 of the present application.

Claim 6:

The claimed subject matter, as set forth in claim 6, is an electric connecting terminal connected to a flat circuit body 1 which combines some of the inventive features set forth in both of claims 1 and 4 discussed above. For the purposes of the following discussion, reference will be made to the non-limiting embodiment disclosed and shown in Figures 9 and 10 (reproduced above).

As discussed previously, in the exemplary embodiment depicted in at least Figures 9 and 10, the electric connecting terminal 41 comprises a plane portion 23 and a pair of piercing portions 43 and 44. Each of the piercing portions 43 and 44 are erected from opposite side edges of the plane portion 23, which extend in a longitudinal direction of the terminal 41. *See also* Specification, page 20, lines 14-21. As depicted in Figure 10, the piercing portions 43 and 44

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penetrate through a coating 5 and a conductor 4a of the flat circuit body 1. *See also id.*

Moreover, once penetrated through the flat circuit body 1 the tips of the piercing portions 43 and 44 are folded towards each other.

Further, each of the piercing portions 43 and 44 contain a first portion which is connected to the respective edge of the plane portion 23 on one end of the first portion, and a second portion connected to an other end of the first portion. The second portion also includes a tip and a taper surface 43b and 44b for gradually reducing a thickness of the second portion. *See Figure 9 and the Specification, page 20, line 14 to page 21, line 7.* The taper surfaces 43b and 44b are positioned on the respective piercing portions 43 and 44 such that the taper surfaces 43b and 44b face each other over the plane portion 23. Additionally, the first portion, connected to the plane portion 23, has an approximate constant width in the longitudinal direction of the edge of the terminal 41. *See Figures 9 and 11B, and Specification, page 20, line 22 to page, 21, line 17.*

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GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 1, 2, 6, 7, 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,561,714 to Byczek et al. in view of U.S. Patent No. 4,371,225 to Narozny.

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ARGUMENTS

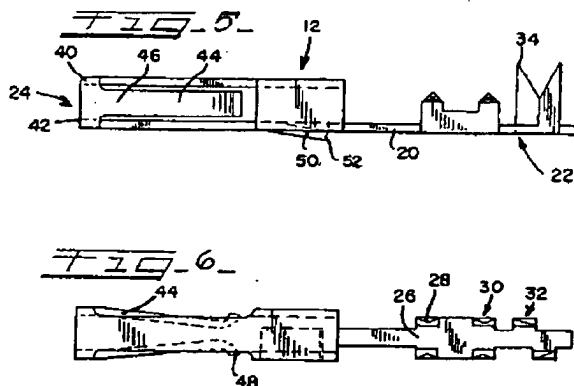
Appellant's arguments for patentability are set forth in detail below. Each of the rejected claims will be discussed individually below, unless otherwise indicated.

35 U.S.C. § 103(a) Rejection - Claims 1, 2, 4, 6, 7, 9 and 10:

Claims 1, 2, 4, 6, 7, 9 and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,561,714 to Byczek et al. in view of U.S. Patent No. 4,371,225 to Narozny.

Claims 1, 2, 6, 7, 9 and 10:

Byczek discloses a contact element 12 which is connected to an elongated ribbon cable 10 having a plurality of flat conductors 16 placed therein. *See* Byczek, col. 2, lines 31-38. As shown in Figures 5 and 6 (reproduced below), the element 12 has an elongated conductive metal member 20 that has a penetrating end 22 and a mating contact end 24. *See id.* at lines 39-42.



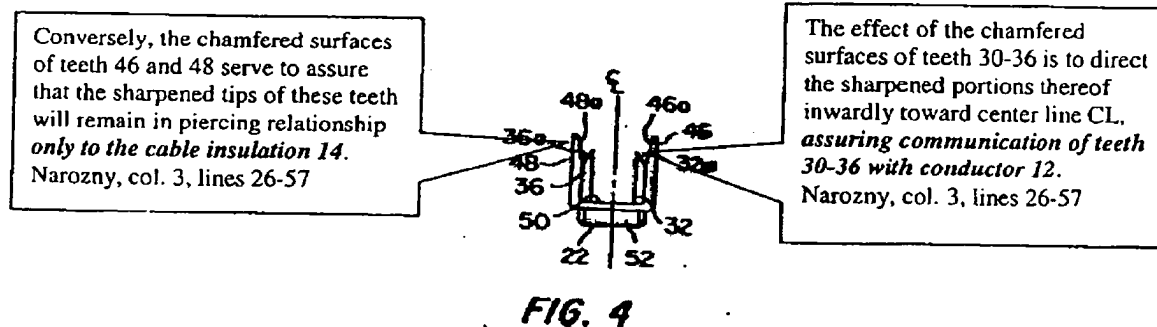
As shown above, the penetrating end 22 has a flat rectangular body member 26 which has a number of pairs of tangs 28, 30 and 32 extending from opposite edges of the body member 26. *See id.* at lines 42-46. The pair of piercing tangs 32 are slightly longer than the pairs of piercing

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tangs 28 and 30. Additionally, the pair of piercing tangs 32 are axially offset from each other and each tang 32 has a sharp point 34. Byczek discloses using the six disclosed tangs to allow for the reduction of the thickness of the tangs. *See id.* at lines 48-51. The tangs are used to pierce entirely through the metal conductor 16 and be crimped on the opposite side of the dielectric material. Further, the tangs 28, 30 and 32 each have a portion connected to the body 26 and distal portions connected to the portion connected to the body 26.

However, as admitted by the Examiner, Byczek fails to disclose that the distal portions have tapered surfaces inclined with respect to an internal surface of the root or bottom portions of the tangs. To cure this deficient teaching, the Examiner relies on the teachings of Narozny.

Narozny discloses a terminal 16 connected to a flat cable 10 having a casing 14 and flat conductors 12 within it. The terminal 16 has a number of projections 30, 32, 34, 36, 46 and 48 which are designed to penetrate through the cable 10. As shown in Figure 4 (reproduced below), the projections 30, 32, 34 and 36 have tapered surfaces (i.e. 32a and 36a) which taper away from each other, while the projections 46 and 48 have tapered surfaces 46a and 48a which face each other.



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As shown above, the tapered surfaces 46a and 48a are similar to those disclosed in the present application. However, Appellant submits that there is an important distinction. Specifically, in the present application (as set forth in the claim 1), the pair of piercing portions extend through both a conductor and a coating, but in Narozny, the projections 46 and 48 do not pierce the conductor. In fact, Narozny expressly states:

The lateral spacing between teeth 46 and 48 is selected to be of measure D_2 (FIG. 1), i.e., a distance sufficiently in excess of the width of conductors 12 to insure that side margins 42 and 44 and the totality of teeth 46 and 48 are disposed outwardly of conductor 12 when teeth 30-36 are disposed ... in confronting relation to conductor 12. Upon forcing of the cable onto connector 16, teeth 46 and 48 pierce insulative casing 14 only and do not confront conductor 12. ... the chamfered surfaces of teeth 46 and 48 extend inwardly toward connector centerline CL, thus providing that the sharpened tips of teeth 46 and 48 pierce insulation of flat cable 10 substantially outwardly of conductors 12. The effect of the chamfered surfaces of teeth 30-36 is to direct the sharpened portions thereof inwardly toward center line CL, assuring communication of teeth 30-36 with conductor 12. *Conversely, the chamfered surfaces of teeth 46 and 48 serve to assure that the sharpened tips of these teeth will remain in piercing relationship only to the cable insulation 14.* Narozny, col. 3, lines 26-57 (emphasis added).

As shown above, in the emphasized text, Narozny expressly teaches that the use of the interior tapered surfaces is to keep the portions 46 and 48 away from the conductor. This is contrary to the present invention.

In attempting to address Narozny's teachings, the Examiner has indicated that the Examiner is relying on Narozny to teach "that the tapering of the inner and outer surfaces is useful for directing the teeth inwardly and outwardly as desired, whether through the conductor or not." See Final Office Action dated March 4, 2004, page 3. Essentially, the Examiner is

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relying on Narozny to teach that the direction that the projections are bent can be controlled by the side of the projections on which the tapered portions are placed. Further, the Examiner is asserting that it would have been obvious to change the tapered surface of the projections 32 in Byczek, in accordance with the teachings of Narozny. Appellant disagrees with the Examiner and submits that there is no motivation to combine the references as suggested by the Examiner, and even if a skilled artisan were motivated to combine the references, the resultant combination would not disclose each and every feature of the claimed invention.

First, Appellant notes that a critical step in analyzing the patentability of claims pursuant to section 103(a) is casting the mind back to the time of invention, to consider the thinking of one of ordinary skill in the art, guided only by the prior art references and the then-accepted wisdom in the field. *See In re Kotzab*, 55 USPQ2d 1313, 1316 (Fed. Cir. 2000) (citing *In re Dembiczak*, 175 F.3d 994, 999, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999)). Close adherence to this methodology is especially important in cases where the very ease with which the invention can be understood may prompt one "to fall victim to the insidious effect of a hindsight syndrome wherein that which only the invention taught is used against its teacher." *Kotzab*, 55 USPQ2d at 1316 (quoting *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 313 (Fed. Cir. 1983)).

Most if not all inventions arise from a combination of old elements. *In re Kotzab*, 55 USPQ2d at 1316 (citing *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457 (Fed. Cir. 1998)). Thus, every element of a claimed invention may often be found in the prior art. *Id.* However, identification in the prior art of each individual part claimed is insufficient to defeat

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patentability of the whole claimed invention. *Id.* Rather, to establish obviousness based on a combination of the elements disclosed in the prior art, there must be some motivation, suggestion or teaching of the desirability of making the specific combination that was made by the applicant. *In re Kotzab*, 55 USPQ2d at 1316 (citing *In re Dance*, 160 F.3d 1339, 1343, 48 USPQ2d 1635, 1637 (Fed. Cir. 1998); and *In re Gordon*, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984)).

“Although the suggestion to combine references may flow from the nature of the problem, ‘defining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness.’” *Exolochem, Inc. v. Southern California Edison Co.*, 2000 U.S. App. LEXIS 22681, *28 (Fed. Cir. 2000) (citing *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 880, 45 USPQ2d 1977, 1981 (Fed. Cir. 1998)). “Therefore, when determining the patentability of a claimed invention which combines two known elements, the question is whether there is something in the prior art as a whole to suggest the desirability, and thus obviousness, of making the combination.” *Id.* at *29-30 (citing *In re Beattie*, 974 F.2d 1309, 1311-12, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992)).

Further, there must be a showing of a suggestion or motivation to modify the teachings of that reference. *In re Kotzab*, 55 USPQ2d at 1316-1317 (citing *B.F. Goodrich Co. v. Aircraft Breaking Sys. Corp.*, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996)); see also MPEP § 2142 (quoting *Ex parte Clapp*, 227 USPQ 972, 973 (B. Pat. App. & Inter. 1985)) (“To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must

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present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references.”).

Moreover, the mere fact that the claimed invention is within the capabilities or familiarities of one of ordinary skill in the art, or “can” be made by the skilled artisan is not sufficient, by itself, to establish *prima facie* obviousness. See MPEP § 2143.01.

In the Examiner’s rejection, the above motivation is lacking. In fact, the Examiner’s statement of motivation supports Appellant’s position. Specifically, the Examiner states that “Narozny teaches that one would have tapered the inner and outer surfaces as desired to control the deflection direction of the teeth as they passed through the cable, whether through the conductor or not.” See Final Office Action, page 3. Even if this statement were taken as true it does not satisfy the burden because Narozny teaches that one should place the tapered surfaces on the inner surface of the projections 46 and 48 to “serve to assure that the sharpened tips of these teeth will remain in piercing relationship *only to the cable insulation 14*.” Narozny, col. 3, lines 55-57 (emphasis added). This is contrary to both Byczek and the present invention.

Stated differently, assuming that Narozny teaches a skilled artisan that the angled surfaces can be used to determine the direction that the teeth will go when penetrating the cable, then the skilled artisan would not wish to use interior angled surfaces to penetrate the conductor in the Byczek device. Byczek teaches the desire and necessity to have the tangs penetrate both the conductor and the insulation, not just the insulation. But Narozny teaches that to ensure that one “only” punctures the insulation the interior angled surfaces should be used. Therefore, contrary to the Examiner’s assertions, a skilled artisan would not be motivated to combine the

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interior angled surfaces of Narozny with the tangs of Byczek. Narozny teaches that this will not work for the purposes desired in Byczek.

Additionally and independently, even if it were assumed that a skilled artisan would wish to combine the teachings of these references, the resultant combination would not teach or suggest each and every feature of the claimed invention. Specifically, as described above, assuming one of ordinary skill in the art would have combined Narozny with Byczek, the resultant combination would have the projections 32 (in Byczek) with a tapered surface on its outer side and not its interior side. Narozny expressly teaches that to ensure proper connection of the teeth 30-36 with the conductors 12, the tapered surfaces (32a and 36a) are to be on the outer surface of the teeth. Thus, this is how one of ordinary skill in the art would have modified Byczek. Stated differently, one of ordinary skill in the art would not have tapered the inner surfaces because Narozny expressly teaches that this should be done to ensure that the teeth avoid contact with the conductor.

Because of the teachings of the above two references, one of ordinary skill in the art would not have been motivated to combine these references as suggested by the Examiner. Further, even if one would have combined the teachings of these references (which Appellant does not admit), they would have placed the tapered surfaces on the outer edges of the projections 32 so as to ensure contact with the conductor and the insulation, as clearly taught by Narozny.

In view of the foregoing, Appellant submits that neither Byczek or Narozny, taken individually or in combination, teach or suggest each and every feature of the claimed invention,

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either individually or in combination. As such, the Examiner has failed to establish a *prima facie* case of obviousness with respect to claims 1, 2, 6, 7, 9 and 10. Therefore, the rejection of these claims under 35 U.S.C. § 103(a) is improper and should be reversed.

Claim 4:

Claim 4 has been canceled without prejudice or disclaimer in Applicant's Supplemental Amendment under 37 C.F.R. 1.116, filed concurrently herewith.

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CONCLUSION:

Unless a check is submitted herewith for the fee required under 37 C.F.R. §41.37(a) and 1.17(c), please charge said fee to Deposit Account No. 19-4880.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

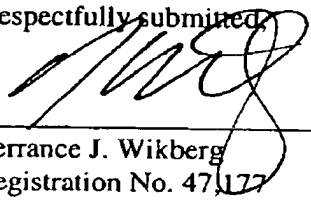
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23373

CUSTOMER NUMBER

Respectfully submitted,


Terrance J. Wikberg
Registration No. 47,177

Date: October 4, 2004

CLAIMS APPENDIX**CLAIMS 1, 2, 4, 6, 7, 9 and 10 ON APPEAL:**

Claim 1. An electric connecting terminal connected to a flat circuit body comprising:

a plane portion;

a pair of piercing portions erected from opposite side edges of the plane portion which penetrate through a coating and a conductor of the flat circuit body and tips thereof are folded in such a direction as to approach each other, wherein said piercing portions include a root portion and a distal portion, an internal surface of said distal portion being inclined with respect to an internal surface of said root portion so that said distal portion is tapered.

Claim 2. The electric connecting terminal according to claim 1, wherein an external surface opposed to the internal surface of each piercing portion is provided with a taper surface for gradually reducing the thickness of the piercing portion.

Claim 3. (CANCELLED)

Claim 4. (CANCELLED)

Claim 5. (CANCELLED)

Claim 6. An electric connecting terminal connected to a flat circuit body comprising:

a plane portion; and

a pair of piercing portions erected from opposite side edges of the plane portion which penetrate through a coating and a conductor of the flat circuit body and are adapted to be folded in such a direction as to approach each other, said edges extending in a longitudinal direction of said terminal each of the piercing portions including:

a first portion, one end of the first portion being connected to the edge of the plane portion, and

a second portion connected to the other end of the first portion including a tip and a taper surface for gradually reducing a thickness of the second portion,

wherein the pair of the taper surfaces face each other over the plane portion, wherein the first portion has an approximately constant width in said longitudinal direction.

Claim 7. The electric connecting terminal according to claim 6, wherein a width of the second portion becomes gradually narrow toward the tip thereof.

Claim 8. (CANCELLED)

Claim 9. The electric connecting terminal according to claim 6, wherein a width of the second portion becomes gradually narrow toward the tip thereof.

Claim 10. The electric connecting terminal according to claim 6, wherein the second portion includes the taper surfaces on opposite sides thereof.

EVIDENCE APPENDIX:

NONE

RELATED PROCEEDINGS APPENDIX

NONE